



## Medical simulation is wave of the future, U of O doctors say

Lynne Cohen

**D**octors at the University of Ottawa Heart Institute (OHI) have never had a more cold-hearted patient than Sam. This 5-foot, 10-inch moulded plastic mannequin, which cost \$250 000, is the centrepiece of the university's new Patient Care Simulation Centre.

After being primed and programmed by a team of OHI engineers, Sam is going to be used to train and re-train students, doctors and nurses by this spring. He represents the latest advance in the growing movement toward patient simulation. "Doctors have always had to learn how to handle heart attacks using real patients," says Dr. Earl Wynands, former chief of anesthesia at the OHI and the Ottawa Civic Hospital, and now acting director of the simulation centre. "In many cases, those victims did not do so well. Now, the medical team can learn on Sam." Instead of causing patient morbidity or mortality, adds Wynands, student errors can be corrected with a flick of Sam's reset button.

Wynands' lobbying for the simulation centre began in earnest after he retired 2 years ago. He garnered start-up support and money from several sources, including the dean of medicine and the departments of anesthesia, surgery, cardiology, critical care and emergency medicine. "We are building Canada's first multidisciplinary simulation centre," he explains. "The other centres, 2 in Toronto and 1 in Edmonton, serve only single disciplines."



Sam the simulator: correct errors with the flick of a reset button

He thinks the Ottawa centre, which still needs ongoing operating funding, will thrive under the directorship of Dr. Tofy Mussivand, who heads a team of 60 engineers in the OHI's Cardiovascular Devices Department. They will develop the computer software and hardware needed to make Sam tick.

"We will be able to mimic, for example, an extremely rare heart condition that cardiologists may see only once or twice in their careers," explains Mussivand. "With the model, we can repeat the condition 10 000 times if we want to."

Although Sam himself will remain stationary, his surroundings will change. "His room can change into an OR, an ER, an ICU or a ward bed. The computer operators' area will be behind a wall, and there will be a viewing room with a window for observers to learn and where debriefing will occur."

Indeed, when Sam goes into anaphylactic shock and his heart begins its frantic palpitations, the medical personnel nearby launch into real life-saving action. "You would be amazed at how the nurses and medical students react when Sam is in crisis," says Wynands. "Almost all of them — I'd say 95% — react as if he is a real patient. I see him as a real patient. The other 5% don't see him as a patient, don't care and don't learn."

Wynands predicts that Sam will "drastically change" medical learning: "There is almost no area of medicine that won't be touched by simulation technology in the next 10 years."

He even sees simulation helping older doctors. "Airline pilots train on simulators and are checked out from time to time. This is what should be happening in anesthesia and intensive care, where people run into all kinds of complications."

Mussivand thinks simulation will mean significant savings. "We could train the public, every person who has a disease, and their families. They would learn how their disease progresses, the consequences and what they should do or not do. And this would mean less need for hospital stays or visits."

*Lynne Cohen is a freelance writer living in Ottawa.*